



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,921	03/13/2006	Stephen B. Murphy	103068-0003U	7285
24267 7590 02/19/2010 CESARI AND MCKENNA, LLP 88 BLACK FALCON AVENUE BOSTON, MA 02210				
EXAMINER DANEGA, RENEE A				
ART UNIT		PAPER NUMBER		
3736				
MAIL DATE		DELIVERY MODE		
02/19/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/565,921

**Applicant(s)**

MURPHY, STEPHEN B.

**Examiner**

Renee Danega

**Art Unit**

3736

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 4-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4-6, 9-11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarin et al. (US 20040254586) in view of DiGioia et al. (US 6205411) Chen et al. (WO 02/062248).

- Regarding claims 4, 5, 9-10 and 14, Sarin teaches a method executed in a computer system having at least one processor for determining axial rotation of a pelvis, comprising receiving a information defining a coordinate system of said pelvis in the near AP direction; defining first and second landmarks of said pelvis, said landmarks separated from each other in at least an anterior-posterior direction; determining the transaxial displacement of said landmarks on said image; and using said displacement to determine the axial and transaxial rotations of said pelvis with respect to the plane of said image [0041] [0042] [0051] [0052]. Sarin doesn't expressly teach using fluoroscopy. However, DiGioia teaches superimposing landmark registration onto a fluoroscopic image, wherein rotation is taken as a function of displacement of the fluoroscopic images of a sample taken at known orientations to the image plane in order to aid

in surgical simulations in preoperative planning minimizing the extent to which the pelvis must be exposed during the procedure (abstract) (column 11, lines 11-25) (Figure 2). It would have been obvious in view of DiGioia to use a fluoroscopic image in Sarin in order to provide a realistic visualization to aid in pre-operative simulation and planning of surgery.

- Regarding claims 6 and 11, Sarin teaches the second landmark to comprise the midpoint of a line between the image points on the left and right sacroiliac joints [0025].

3. Claims 7-8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarin modified by DiGioia as applied to claims 1 and 9 above, and further in view of Chen et al. (WO 02/062248).

- Regarding claims 7-8 and 12-13, Sarin modified by DiGioia doesn't expressly teach normalizing displacement with respect to the separation between further landmarks. However, Chen teaches finding the distance from the pubic symphysis to the right and left teardrops (62) (60) and (66) (68) (Figure 2). It would have been obvious in view of Chen to use a second set of points in Sarin modified by DiGioia in order to ensure the accuracy of the calculated rotation relative to the first set of points.

### ***Response to Arguments***

Applicant's arguments filed 11/30/09 have been fully considered but they are not persuasive. Sarin doesn't teach taking an image but does teach manipulating landmarks

on a display, or an image. DiGioia teaches mapping the landmarks on CT images and models (as cited) generated from fluoroscopic imaging (column 8, lines 59-67). Examiner refers to Chen's identification of two additional landmarks at the right and left teardrops as additional landmarks defining a second trajectory and enabling identification of rotation in 3 dimensional space to judge relative distance and translation with. Examiner takes normalized to mean that the displacement takes into account the likewise displacement of the second pair of points. As with any projection, the more points that are projected of the overall image, the higher the relative accuracy amongst the points.

### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renee Danega whose telephone number is (571)270-

3639. The examiner can normally be reached on Monday through Thursday 8:30-5:00 eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (571) 272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RAD

/Max Hindenburg/  
Supervisory Patent Examiner, Art Unit 3736